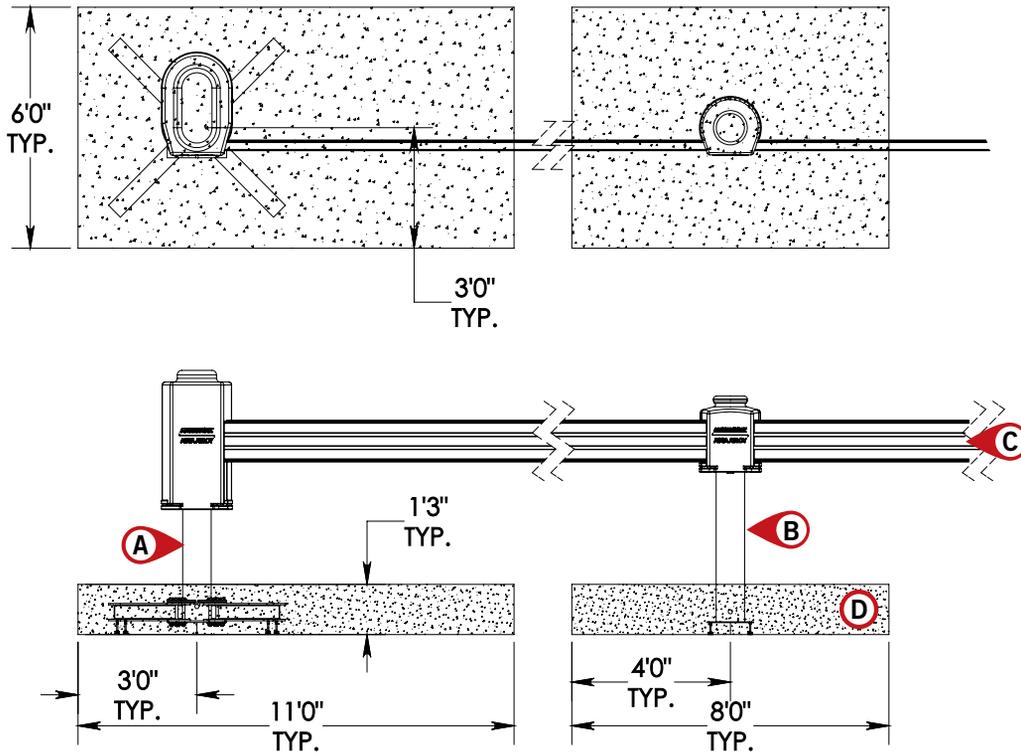


STALWART OPTIMA®

Stand Alone System

PATENT PENDING



- (A) 8.625" DIAMETER END TERMINAL POST**
- (B) 8.625" DIAMETER LINE POST**
- (C) 11" x 2.75" DUAL RAIL w/ 3 STRANDS OF FIBER ROPE**
- (D) 4000 PSI CONCRETE w/ REBAR***

*Rebar and concrete by others - rebar not shown for clarity.

SYSTEM REQUIRES ASSEMBLY

Refer to construction specification & tables within this section for recommended post spacing

Effective: 05/15/19

STALWART OPTIMA® | POSTS

TERMINAL POSTS & LINE POSTS | ASSEMBLY REQUIRED

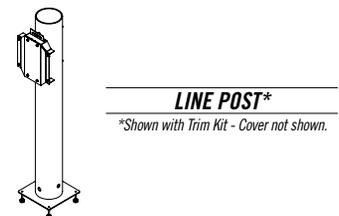
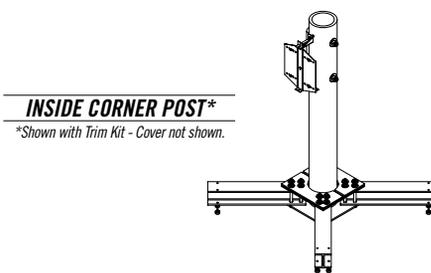
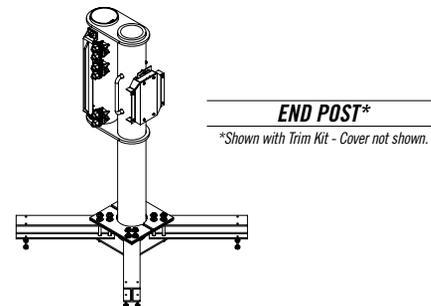
POSTS	ITEM NUMBER	WEIGHT	STOCKING
Line Post	FLPⓧ-M30	172 lbs	⊗
End Post*	FEPⓧ-M30	899 lbs	⊗
Corner Post	FCPⓧ-M30	599 lbs	⊗
Intermediate Post*	FIPⓧ-M30	1798 lbs	⊗

*End & Intermediate Posts are Terminal Posts.
Terminal posts are required at barriers end and at the end of fiber-rope.

TRIM KITS	ITEM NUMBER	WEIGHT	STOCKING
Line Trim Kit	FLTKⓧ-M30	10 lbs	⊗
Right End Trim Kit	FERTKⓧ-M30	123 lbs	⊗
Left End Trim Kit	FELTKⓧ-M30	123 lbs	⊗
Outside Corner Trim Kit	FCOTKⓧ-M30	30 lbs	⊗
Inside Corner Trim Kit	FCITKⓧ-M30	28 lbs	⊗
Intermediate Trim Kit	FITKⓧ-M30	246 lbs	⊗

ⓧ = COLOR OPTIONS AVAILABLE | B = Black

⊗ = NON-STOCKED PRODUCT
For details, see Ameristar's Sales Policy in the catalog guide.



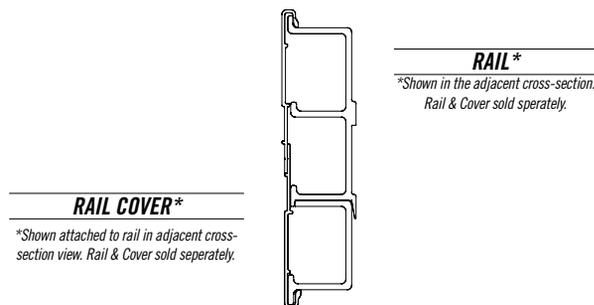
STALWART OPTIMA® | RAILS

16' RAIL LENGTH (192" actual width) | 1 RAIL PER SECTION | ASSEMBLY REQUIRED

RAIL	ITEM NUMBER	WEIGHT	STOCKING
Rail	FCFⓧ-182	119 lbs	⊗
Rail Cover	FCBⓧ-182	99 lbs	⊗

ⓧ = COLOR OPTIONS AVAILABLE | B = Black

⊗ = NON-STOCKED PRODUCT
For details, see Ameristar's Sales Policy in the catalog guide.



Effective: 05/15/19

STALWART OPTIMA® | FIBER ROPE

1-5/8" DIAMETER | SYSTEM REQUIRES 3 ROPE STRANDS | TERMINATION ASSEMBLY REQUIRED

ITEM NUMBER	WEIGHT	STOCKING
FRM30	0.9 lbs / ft	⊖

Note: Fiber Rope shall be priced per linear foot of barrier.

⊖ = **NON-STOCKED PRODUCT**

For details, see Ameristar's Sales Policy in the catalog guide.

STALWART OPTIMA® | POST COVERS

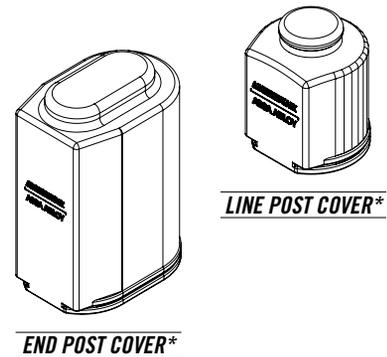
ITEMS	ITEM NUMBER	WEIGHT	STOCKING
Right End Post Cover	FERBC⊗-M30	44 lbs	⊖
Left End Post Cover	FELBC⊗-M30	44 lbs	⊖
Corner Post Cover	FCBC⊗-M30	16 lbs	⊖
Line Post Cover	FLBC⊗-M30	16 lbs	⊖

*Note: Covers are included with Trim Kits. Items listed above for individual sale.

⊗ = **COLOR OPTIONS AVAILABLE** | **B** = Black

⊖ = **NON-STOCKED PRODUCT**

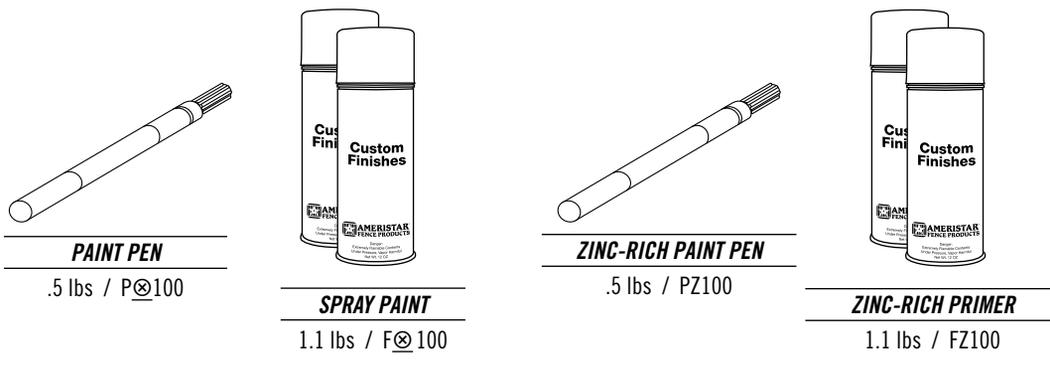
For details, see Ameristar's Sales Policy in the catalog guide.



STALWART OPTIMA® | CUSTOM FINISHES

WARRANTY ON CUT COMPONENTS VOID WITHOUT PROPER TOUCH-UP APPLICATION*

*For details & the guidelines for the proper 3-step process, see Ameristar's Sales Policy in the catalog guide



⊗ = **COLOR OPTIONS AVAILABLE** | **B** = Black

Effective: 05/15/19

STALWART OPTIMA® | CONSTRUCTION SPECIFICATION 32 30 00 11

ANTI-RAM BARRIER | STAND ALONE

PART 1 - GENERAL

1.01 WORK INCLUDED

The contractor shall provide all labor, materials and appurtenances necessary for installation of the anti-ram barrier system defined herein at (specify project site)..

1.02 RELATED WORK

Section ____ - Earthwork
Section ____ - Concrete

1.03 SYSTEM DESCRIPTION

The manufacturer shall supply a total anti-ram barrier system of the Ameristar® Stalwart® Optima® M30/P1 & M50/P2 solitary design. The system shall include all components (i.e., rope, supports, posts, and hardware) required. The barrier shall comply with Ameristar's Stalwart Optima System Drawings (supplied upon request).

1.04 QUALITY ASSURANCE

The contractor shall provide laborers and supervisors who are thoroughly familiar with the type of construction involved and materials and techniques specified. Installation contractor used for this scope of work must provide documentation from the manufacturer showing completion of core training on Stalwart Optima barrier systems.

1.05 REFERENCES

- **ASTM A106** – Standard Specification for Seamless Carbon Steel Pipe for High-Temperature Service
- **ASTM A53** – Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
- **ASTM A572** – Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel
- **ASTM B117** – Practice for Operating Salt-Spray (Fog) Apparatus
- **ASTM D523** – Test Method for Specular Gloss
- **ASTM D714** – Test Method for Evaluating Degree of Blistering in Paint
- **ASTM D1654** – Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments
- **ASTM D2244** – Test Method for Calculation of Color Differences from Instrumentally Measured Color Coordinates
- **ASTM D2794** – Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact)
- **ASTM D3359** – Test Method for Measuring Adhesion by Tape Test
- **ASTM D4976** - Standard Specification for Polyethylene Plastics Molding and Extrusion Materials
- **ASTM G155** – Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Non-Metallic Materials
- **ASTM F2656** – Standard Test Method for Vehicle Crash Testing of Perimeter Barriers

1.06 SUBMITTAL

The manufacturer's submittal package shall be provided prior to installation.

1.07 PRODUCT HANDLING AND STORAGE

Upon receipt at the job site, all materials shall be checked to ensure that no damage occurred during shipping or handling. Materials shall be stored in such a manner to ensure proper ventilation and drainage, and to protect against damage, weather, vandalism and theft.

PART 2 - MATERIALS

2.01 MANUFACTURER

- A.** The anti-ram barrier system shall conform to the Stalwart Optima M30/P1 & M50/P2 design manufactured by Ameristar Perimeter Security USA Inc., in Tulsa, Oklahoma. The system shall be tested to ASTM F2656 and successfully achieve designations for both M30/P1 & M50/P2. Note: Stalwart Optima M30/P1 is capable of stopping a 15,000 lb vehicle traveling at speeds up to 30 mph with a penetration of less than three linear feet. Stalwart Optima M50/P2 is capable of stopping a 15,000 lb vehicle traveling at speeds up to 50 mph with a penetration of less than 10 linear feet.
- B.** The entire anti-ram barrier system, and all associated post, framework, fittings, and fasteners shall be obtained from a single source.

2.02 MATERIAL

- A.** Steel material for terminal posts (i.e., intermediate, end and corner posts) shall conform to the requirements of ASTM A106B, with a minimum yield strength of 60,000 psi. The cross-sectional shape of the posts shall be 8.625" diameter x .875 wall (XXS). Steel material for line posts and terminal assist component shall conform to the requirements of ASTM A53/A53M, with a minimum yield strength of 35,000 psi. The cross-sectional shape of the posts shall be 8.625" diameter x .322 wall (Schedule 40). The steel material for post base stanchions shall conform to the requirements of ASTM A992/A992M and A572, W5x19 wide flange beam. Steel material used for terminal and line post base plate and plate stanchion assembly shall conform to the requirements of ASTM A572 grade 50.
- B.** The cross-sectional shape of the rails shall conform to the manufacturer's Stalwart Optima® rail design a nominal 11" x 2.75" x .25 wall dual profile. Aluminum material for rail and optional rail cover shall conform to the requirements of ASTM B221. The aluminum extrusions shall be Alloy and Temper Designation 6063-T5.

Effective: 05/15/19

STALWART OPTIMA® | CONSTRUCTION SPECIFICATION 32 30 00 11

ANTI-RAM BARRIER | STAND ALONE

- C. The nominal 1.625" Fiber Rope material shall conform to standards CI-1500 and YCI-ENG-045. Fiber Rope shall be .904 lbs per foot with a minimum tensile strength of 97,200 lbs. Rope core material shall consist of twisted polyester bundles laid parallel to another with an overwrap of self-amalgamating tape used to contain and protect the core, covered in an over braided sleeve with a high COF coating.
- D. Terminal and line posts covers shall be constructed of high-density polyethylene. Covers shall be meet material specifications ASTM D4976 – PE 233 and ASTM G155 (Cycle 1): Greater than UV-16 standards.

2.03 FABRICATION

- A. Post weldment shall be fabricated to specified design and lengths. System posts shall be pre-drilled to accept system bracketry and rail fixtures. Terminal post stanchions shall be cut to length and pre-drilled to accept assembly fasteners.
- B. Stalwart Optima rails shall be pre-punched to accept fasteners. System rails and covers shall be pre-cut to specified lengths per manufacturers' system drawings.
- C. The manufactured post and framework shall be subjected to the PermaCoat® thermal stratification coating process (high-temperature, in-line, multi-stage, multi-layer) including, as a minimum, a six-stage pretreatment/wash, an electrostatic spray application of an epoxy base, and a separate electrostatic spray application of a polyester finish. The base coat shall be a thermosetting epoxy powder coating (gray in color) with a minimum thickness of 2 mils (0.0508mm). The topcoat shall be a "no-mar" TGIC polyester powder coat finish with a minimum thickness of 2 mils (0.0508mm). The color shall be black. The stratification-coated framework shall be capable of meeting the performance requirements for each quality characteristic shown in Table 1.

PART 3 - EXECUTION

3.01 PREPARATION

- A. The purchaser shall indicate the location of barrier line with suitable stakes. Stake intervals shall not exceed 500 ft or line of sight.
- B. The purchaser shall indicate all underground utility locations, USC&G benchmarks, property monuments, and other underground structures.
- C. Before installing the Stalwart Optima barrier system, all necessary site clearing and grading shall be performed by the purchaser. An adequate clearance on both sides of the cable barrier line is required.
- D. Installation contractor for this scope of work must be capable of bonding projects up to \$3 million and must demonstrate such with a letter from a reputable bonding entity with the bid documents.

- E. Installation contractor for this scope of work must provide documentation from the product manufacturer indicating they have been trained on installation practices for Stalwart anti-ram barrier systems by the product manufacturer, documentation shall be provided with bid documents.
- F. Installation contractor for this scope of work must provide documentation with bid indicating that the company currently has in place a minimum \$2 million in general liability coverage as well as a minimum \$1 million in commercial vehicle insurance, documentation shall be provided with bid documents.

3.02 FENCE INSTALLATION

- A. The barrier shall be installed per Ameristar's System Drawings (supplied upon request). Rails, bracketry, fiber rope, and fasteners shall be installed according to installation instructions and drawings. Terminal, Corner and Line Posts shall be installed per product drawings and installation instructions. The "Earthwork" and "Concrete" sections of this specification shall govern material requirements for the concrete footer unless otherwise specified by the product drawings or installation instructions.
- B. Terminal and line post footings shall have upper and lower concrete reinforcement rebar base mat as detailed in the systems drawings. Footings shall have a minimum 4000 psi concrete based upon 28 day cure.
- C. System post spacing shall not exceed sixteen linear feet on center. Barrier shall be a continuous system not requiring termination unless system is restricted by rope length or barriers end. When system exceeds a change in direction greater than 15 degrees, corner posts shall be installed. Barrier System intermediate termination shall be based upon contractors fiber rope material handling capability.

3.03 BARRIER INSTALLATION MAINTENANCE

When cutting/drilling system components adhere to the following steps to seal the exposed steel surfaces; 1) Remove all metal shavings from cut area. 2) Apply zinc-rich primer to thoroughly cover cut edge and/or drilled hole; let dry. 3) Apply 2 coats of custom finish paint matching fence color. Failure to seal exposed surfaces per steps 1-3 above will negate warranty. Ameristar spray cans or paint pens shall be used to prime and finish exposed surfaces; it is recommended that paint pens be used to prevent overspray. Use of non-Ameristar parts or components will negate the manufactures' warranty.

3.04 CLEANING

The contractor shall clean the jobsite thoroughly to ensure it is left neat and free of any debris caused by the installation of the cable system.

SEE REFERENCED TABLES ON THE FOLLOWING PAGE

Effective: 05/15/19

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ASSA ABLOY

STALWART OPTIMA® | CONSTRUCTION SPECIFICATION 32 30 00 11

ANTI-RAM BARRIER | STAND ALONE

TABLE 1

COATING PERFORMANCE REQUIREMENTS		
QUALITY CHARACTERISTICS	ASTM TEST METHOD	PERFORMANCE REQUIREMENTS
ADHESION	D3359 – METHOD B	Adhesion (<i>retention of coating</i>) over 90% of test area (<i>tape and knife kit test</i>).
CORROSION RESISTANCE	B117, D714, D1654	Corrosion resistance over 3,500 hours (<i>scribed per D1654; failure mode is accumulation of 1/8" coating loss from scribe or medium #8 blisters</i>)
IMPACT RESISTANCE	D2794	Impact resistance over 60" lb. (<i>forward impact using 0.625" ball</i>).
WEATHERING RESISTANCE	D822 D2244, D523 (60° method)	Weathering resistance over 1,000 hours (<i>failure mode is 60% loss of gloss or color variance of more than 3 delta-E color units</i>).

Effective: 05/15/19

STALWART OPTIMA® | LIMITED WARRANTY

FIBER ROPE ANTI-RAM VEHICLE BARRIER

The Stalwart Optima® Fiber Rope Anti-Ram Vehicle Barrier System by Ameristar® is manufactured from the highest quality materials by skilled craftsmen to meet the highest standards of workmanship in the industry. Posts, rails and metal fixtures shall be subject to a six stage pretreatment/wash followed by an electrostatic spray application of the PermaCoat® Color System, a two coat powder system. The base coat is a thermosetting epoxy powder coating (gray in color). The top coat is a “no-mar” TGIC polyester powder coat finish, which provides the protection necessary to withstand adverse environmental conditions.

The powder coated surface on all metal components by Ameristar is guaranteed under normal and proper usage, against cracking, peeling, chipping, blistering or corroding for a period of seven (7) years from the original purchase date. Normal and proper usage does not include physical damage, abrasion or exposure to salty environments to the protective coating.

Structural components for the Stalwart Optima Barrier System are guaranteed for period of fifteen (15 years) against defects in workmanship or materials.

Should any Stalwart barrier components manufactured by Ameristar fail in accordance with any of the above conditions, Ameristar warrants to the original purchaser their redemption through replacement, renewal or issuance of a credit. The decision as to which method of redemption is allowed is solely at the discretion of Ameristar.

Notice of failure under the conditions of this warranty shall be sent to Ameristar or its authorized representative, in writing, together with proof of purchase and shall specify the nature of the defect and when it was first observed. When cutting components immediately seal the exposed surfaces by 1) Removing all metal shavings from cut area 2) Apply zinc-rich primer to thoroughly cover cut edge and drilled hole; let dry 3) Apply two (2) coats of custom finish paint matching fence color.

Failure to seal exposed surfaces per steps 1-3 above will negate warranty. If contractor uses non-Ameristar parts/components this will negate the warranty. Should the fence be improperly installed, Ameristar shall not be responsible for guaranteed performance or appearance of the material. Neither does this guarantee apply when failure or damage is due to improper use or application, abuse or misuse, salty environments, vandalism or acts of God. Ameristar reserves the right to inspect the material to determine validity of the claim.

Upon validation of the claim by Ameristar or its authorized representative, redemption by replacement, renewal or issuance of a credit shall be made by Ameristar.

The above constitutes the complete warranty by the manufacturer. No other agreement, written or implied, is valid. Ameristar does not authorize any other person or agent to make any other express warranties. Ameristar neither assumes nor authorizes any other person or agent to assume any other liability in connection with the Stalwart Optima barrier system. Some jurisdictions do not allow limitations on how long an implied warranty lasts, nor do they allow an exclusion or limitation of incidental or consequential damages; therefore, the limitations and exclusions noted herein may not apply.

Effective: 05/15/19